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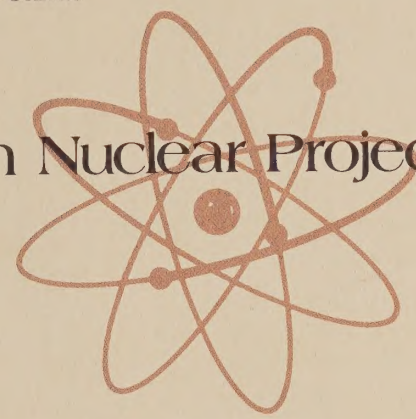
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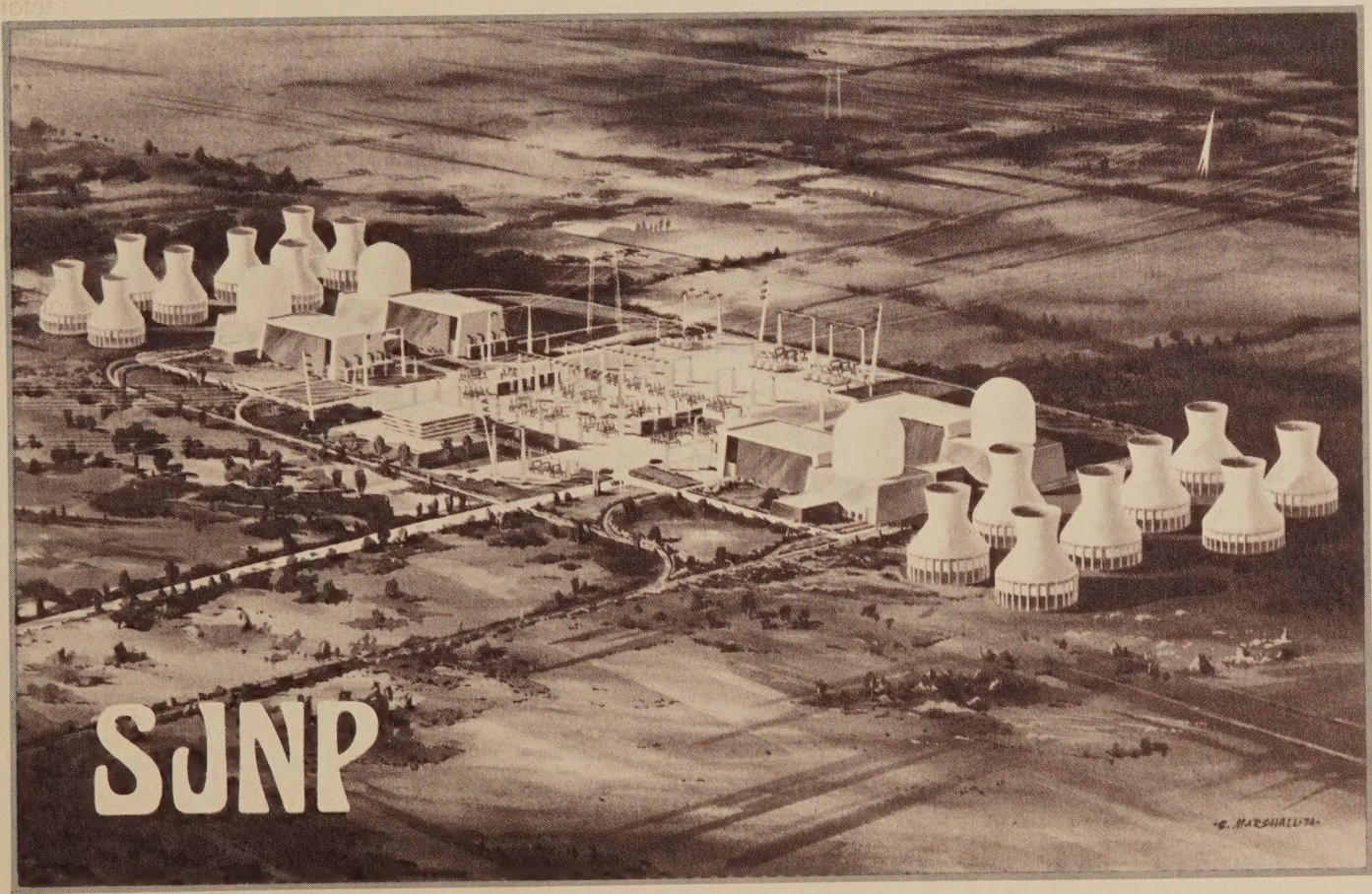
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UNIVERSITY OF CALIFORNIA

# San Joaquin Nuclear Project



Atomic power CA.  
Public Util. Electric systems



G. MARSHALL '74



**C**onstruction of the San Joaquin Nuclear Project (SJNP) in northwestern Kern County is being proposed by a number of California electric utilities and the State of California to provide an economical, reliable power resource for California. Operation of SJNP will reduce the dependence of California electric utilities on costly imported fuel oil by 55 million barrels annually, thus making SJNP a vital factor in California's effort toward the national goal of Project Independence.

The proposed SJNP will include four, 1,300-megawatt, nuclear generating units totaling 5,200 megawatts. Located 33 miles northwest of Bakersfield, the plant site consists of 3,520 acres of relatively undisturbed natural areas and agricultural land. SJNP's Unit 1 is expected to begin operation in late 1983 with other units operational at 18-month intervals until Unit 4 completion in 1988. Total cost of the project is estimated to be \$4.8 billion.

The project participants and their proposed ownership shares are: Los Angeles Department of Water and Power, 35.5 per cent; Pacific Gas and Electric Company, 23 per cent; Southern California Edison Company, 22 per cent; California Department of Water Resources, 10 per cent; the cities of Anaheim, Glendale, Riverside and the Northern California Power Agency, 2 per cent each; and the city of Pasadena, 1.5 per cent.

The Los Angeles Department of Water and Power is Project Manager for conducting feasibility and environmental studies and for the design, construction and operation of the SJNP. Utilities involved in SJNP development serve approximately 90 per cent of California's

electrical needs, therefore making the SJNP a truly statewide power project.

### **Site Development**

The site under investigation, located approximately 10 miles west of the city of Wasco in northern Kern County, was selected following an extensive geologic study of the southern San Joaquin Valley. If the site is approved by the Nuclear Regulatory Commission, the plant will be designed and built to withstand the maximum earthquake forces which might occur at the site.

Facilities to be constructed at the site include reactor structures and auxiliary buildings, turbine-generator buildings and cooling towers. Also, a raw water storage pond, evaporation ponds, an administration and warehouse building, a high-voltage switchyard, a sewage treatment plant, service roads and a railroad spur will be constructed.

Of the 3,520-acre site, approximately 1,112 acres will be occupied by plant facilities. The remaining site acreage will be utilized for farming or maintained in its natural state. Included in this acreage will be a 640-acre wildlife preserve, which will be protected during construction and operation of the plant.

### **Plant Cooling**

Thermal electric generating units require cooling water to dissipate waste heat. The operation of four SJNP units will require approximately 80,000 to 100,000 acre-feet of water per year for cooling purposes. The SJNP will obtain up to 60,000 acre-feet per year from the Metropolitan Water District of Southern California entitlement to State Water Project-California Aqueduct water.

Project plans call for additional cooling water to be obtained from agricultural wastewater available in Kern County. Agricultural wastewater poses an increasingly serious threat to Kern County agriculture as it

builds up in near-surface groundwater thereby rendering valuable crop land unusable. Although considerable research and development is required to produce the technology to utilize agricultural wastewater, the SJNP will use, to the extent practicable, agricultural wastewater. Should the use of agricultural wastewater prove to be infeasible, the size of the plant will be reduced to the number of generating units which can be accommodated by the Metropolitan Water District entitlement.

The SJNP will utilize an evaporative cooling system which will preclude the release of any plant effluent into local groundwater or waterways. Studies conducted by the project indicate that the use of cooling towers will not adversely affect the climate of Kern County.

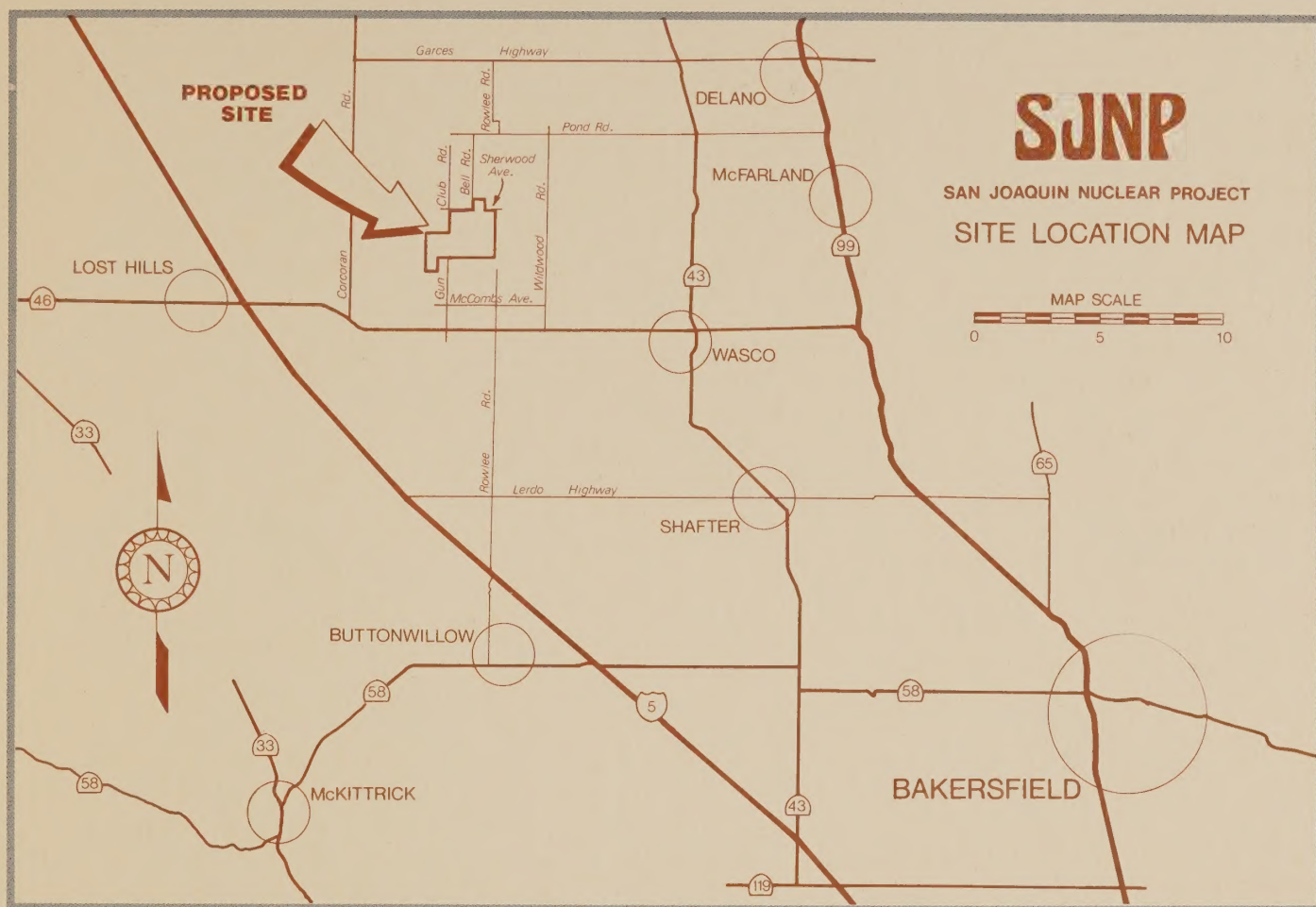
### **Why a Nuclear Facility?**

The project is being considered by California utilities for base-load generation due to a variety of factors including favorable energy production costs, an uncertain world oil supply, California's need for additional power resources and concern regarding the impact of new fossil fueled plants on state air quality.

As a nuclear fueled plant, operation of SJNP will reduce the need to purchase an estimated 55 million barrels of imported low-sulfur fuel oil annually. At a conservative \$14 per barrel, the 55 million barrels of oil represent a purchase of \$770 million, most of which would be going to foreign oil producing nations.

As one of California's diversified power resources, SJNP will be a key factor in the state's effort toward our national goal of Project Independence by providing energy at a lower cost than comparable oil-fired generating plants and without dependence on a foreign produced oil supply. As the price of imported oil increases, SJNP also will contribute toward reduction of the cur-





rent U.S. world trade balance of payments deficit.

The project is designed to allow the utility participants to provide electric power to meet their system needs including the retirement of older fossil-fueled power plants. As a 10 per cent owner of SJNP, the California Department of Water Resources will utilize its generation entitlement to pump water along the California Aqueduct, benefiting water contractors.

### Economic Benefits

During SJNP construction and operating periods, payrolls and tax revenue will provide considerable economic benefits to Kern County.

Property taxes on the 3,520-acre site presently yields approximately \$19,500 per year. Kern County revenue on the taxable portion of the

completed SJNP will be approximately \$17 million annually.

As examples of taxes generated by SJNP, the following table compares present and future revenues:

| County Tax Revenue on Site and Facilities |         |                |  |
|-------------------------------------------|---------|----------------|--|
| Example                                   | Present | Completed SJNP |  |
| County General Fund                       | \$7,303 | \$9,734,400    |  |
| Kern County Water Agency                  | 103     | 137,400        |  |
| County Fire Fund                          | 1,517   | 2,022,000      |  |

Also, property tax rates would be substantially reduced in school districts currently receiving revenue.

During the SJNP construction period of 1977 to 1988, about 24,700 man-years of construction employment will be required. Workers needed for the project will increase from 400 employees in 1977 to a peak of

3,500 in 1983. As the project nears completion, the work force will be reduced from 3,000 employees in 1985 to 800 in 1988. This large construction force will receive about \$839 million in total direct construction wages (1983 dollars), resulting in a total increase in regional income of \$2.64 billion during the 11 years of construction.

During that period, the additional regional income will generate approximately \$1.18 billion in retail sales in Kern County. Approximately 200 to 525 new jobs will be created in the secondary labor market to provide goods and services to construction forces and their families.

Once completed, the project will provide employment for an operating staff of 250 persons with an annual payroll of about \$7.6 million (1983 dollars). Also, it is estimated that 50





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new jobs will be created to provide a secondary labor force supporting the operating staff. During the plant's operating lifetime, the total (direct and indirect) annual income generated in the region is estimated to be \$22.5 million or a lifetime total of \$787.5 million (1983 dollars).

In addition, materials purchased within the region for SJNP during the construction period will result in an expenditure of about \$106.5 million.

### Population Growth

Construction and operation of SJNP will produce population changes in Kern County. These changes in 1983, the peak construction year, and in 1990, a typical operating year, are shown in the following table:

**Kern County Population Changes**

| Communities         | 1970<br>Census | 1983          |                  | 1990         |                 |
|---------------------|----------------|---------------|------------------|--------------|-----------------|
|                     |                | With<br>SJNP* | Without<br>SJNP* | With<br>SJNP | Without<br>SJNP |
| Greater Bakersfield | 183,331        | 219,030**     | 214,555          | 232,200**    | 232,100         |
| Wasco Area          | 9,998          | 11,090        | 10,390           | 11,050       | 10,600          |
| Shafter Area        | 10,975         | 10,910        | 10,560           | 10,850       | 10,700          |
| Delano/McFarland    | 21,142         | 24,200        | 23,300           | 24,150       | 24,000          |

\*Based on linear interpolation between 1980 and 1990

\*\*Includes mobile home parks within 50 miles of the SJNP site

Of the 6,425 new Kern County residents, including employees, families and secondary workers, forecast for 1983 at the height of plant construction, it was estimated that about 4,475 will reside in greater Bakersfield resulting in an increased population growth of 2 per cent.

Upon project completion, the operating employees, their families and the resulting secondary workers will live for the most part in Wasco, Shafter and the Delano-McFarland areas. The overall effect of the SJNP population increases in Kern County could prove to be a benefit to the rural areas considering the trend toward a declining population.

### Current Developments

The Los Angeles Department of Water and Power, acting as lead agency under the California Environmental Quality Act (CEQA), will

release the SJNP Draft Environmental Impact Report (DEIR) in April 1975, followed by a 90-day public review and comment period. During this review period, a series of information meetings and a public hearing will be held in Kern County to receive public input on the DEIR. A public hearing also is planned for Los Angeles County.

Following the review and comment period, a Final Environmental Impact Report (FEIR) will be prepared. The participants in SJNP will not take any action on a proposed SJNP participation agreement until certification of the FEIR.

Copies of the SJNP Feasibility Study Report, Early Site Review Report and

inary Safety Analysis Report before a construction permit can be issued by the NRC.

A chronological listing of significant project events appears below:

#### SJNP Milestone Schedule

|                                                                           |                |
|---------------------------------------------------------------------------|----------------|
| Early Site Review Report Submitted                                        | February, 1974 |
| Feasibility Study Completion                                              | August, 1974   |
| California Draft Environmental Impact Report Completed                    | April, 1975    |
| Construction Permit Application and Environmental Report Submitted to NRC | July, 1976     |
| Preliminary Safety Analysis Report Submitted to NRC                       | November, 1976 |
| Site Preparation                                                          | August, 1977   |
| Construction Permit Issued                                                | March, 1978    |
| Start of Construction                                                     | March, 1978    |
| Unit 1 Commercial Operation                                               | November, 1983 |
| Unit 2 Commercial Operation                                               | May, 1985      |
| Unit 3 Commercial Operation                                               | November, 1986 |
| Unit 4 Commercial Operation                                               | May, 1988      |

other project documents are available for public inspection in the reference section of the following libraries:

Beale Memorial Library,  
1315 Truxtun Ave., Bakersfield;  
Wasco Branch Library, 1102 7th St., Wasco;  
Los Angeles Public Library, 630 W. 5th St., Los Angeles; and  
Los Angeles Department of Water and Power Library, 111 N. Hope St., Los Angeles.

The project DEIR also will be available at these locations.

### Project Schedule

In addition to the complying with CEQA, the project must submit an environmental report to the Nuclear Regulatory Commission (NRC) for its use in preparing a Federal Environmental Impact Statement. The project also must complete a prelim-

**San Joaquin Nuclear Project**  
**P.O. Bin 319**  
**Bakersfield, CA 93302**